



NAPA COUNTY GROUNDWATER SUSTAINABILITY Annual Report – Water Year 2024

EXECUTIVE SUMMARY

March 2025

Prepared for:

Napa County Groundwater Sustainability Agency

Napa County Department of Planning, Building,
and Environmental Services

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This document summarizes the Napa County Groundwater Sustainability Annual Report – Water Year 2024 (WY 2024 Annual Report). For more information, the full report is available at <https://www.countyofnapa.org/3219/County-of-Napa-Plans-Reports-Documents>.

CONTENTS

Introduction 1

Groundwater Elevations 5

Water Supply and Use 6

Subbasin Groundwater Storage 8

Interconnected Surface Water 11

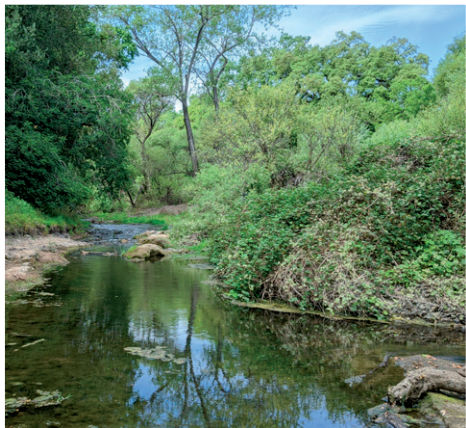
Land Subsidence 11

Degraded Water Quality and Seawater Intrusion 12

Sustainable Management Criteria 12

GSP Implementation Progress 15

References 20



Introduction

Groundwater and surface water are highly important natural resources in Napa County. Together, the County, Napa County Groundwater Sustainability Agency (NCGSA), municipalities, water districts, public water system operators, commercial and industrial operations, the agricultural community, and the public are stewards of available water resources. Everyone living and working in Napa County has a stake in protecting the county's groundwater resources, including groundwater supplies, quality, and associated watersheds (LSCE, 2022). Without sustainable groundwater and interconnected surface water resources, the character of the county would be significantly different in terms of its economy, communities, rural character, ecology, and lifestyles.

The Napa County Groundwater Sustainability: Annual Report–Water Year 2024, presents an update on groundwater conditions, water use, and Groundwater Sustainability Plan (GSP) implementation in the Napa Valley Subbasin (Subbasin), as required by §356.2 of the GSP Regulations.^{1 2}

As in the past ten consecutive annual reports, this Report includes an update on groundwater conditions elsewhere in the county. This is the fourth annual report prepared to support implementation of the Napa Valley Subbasin GSP, adopted by the NCGSA in January 2022 and approved by the California Department of Water Resources (DWR) in January 2023.

The Napa Valley Subbasin (DWR Subbasin No. 2-002.01) generally aligns with the locally defined Napa Valley floor. The Subbasin covers 72 square miles (45,900 acres) and spans approximately 3 miles in width and 30 miles in length trending southeast-northwest (**Figure 1**). The Subbasin is bordered by the Mayacamas Mountains to the west and the northern Coast Range to the east, an area characterized by low northwest trending mountain ridges separated by intervening stream valleys (CAGS, 2002).

¹ Consistent with the GSP Regulations, the term “water year” is used in this report to refer to the period from October 1 through the following September 30, with the year designated according to the calendar year in which it ends (i.e., water year 2023 spanned from October 1, 2022 through September 30, 2023).

² References to GSP Regulations refer to Title 23 of the California Code of Regulations (CCR) originally developed and adopted by the California Department of Water Resources in 2016, as required by the 2014 Sustainable Groundwater Management Act (SGMA). SGMA is published in California Water Code Section 10733.2.

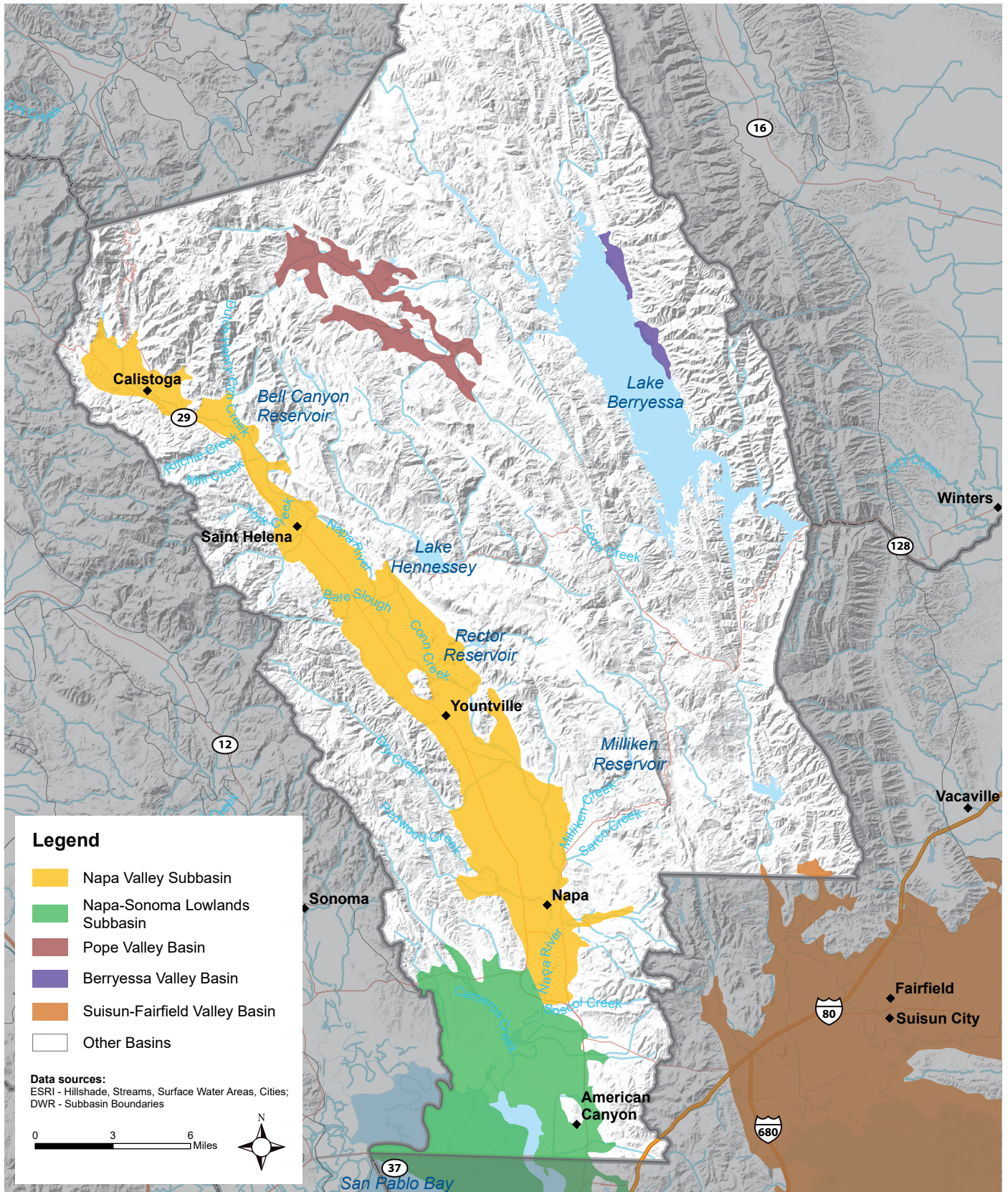


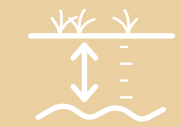
Figure 1. DWR Basins and Subbasins

DWR has identified four other groundwater basins and subbasins in and around Napa County (DWR, 2016).³ These basins and subbasins include the Napa-Sonoma Lowlands Subbasin (DWR Subbasin No. 2-002.03), Berryessa Valley Basin (DWR Basin No. 5-020), Pope Valley Basin (DWR Basin No. 5-068), and a small part of the Suisun-Fairfield Valley Basin (DWR Basin No. 2-003) (**Figure 1**). The Napa-Sonoma Lowlands Subbasin, designated as a very low priority subbasin by DWR, is the only subbasin adjacent to the Napa Valley Subbasin and is not required to develop a GSP.

Napa County has advanced groundwater monitoring efforts in the county since 2009 with the creation of the Comprehensive Groundwater Monitoring Program and formalized the groundwater monitoring efforts in the Napa County Groundwater Monitoring Plan 2013. Since adoption of the GSP in January 2022, the monitoring program expanded to include nine monitoring networks managed by the NCGSA (**Table 1**). These nine monitoring networks provide the necessary data to evaluate the sustainable management criteria for each of the six sustainability indicators. While the monitoring networks provide information critical for groundwater management within the Subbasin, they typically provide coverage throughout Napa County. In addition to the GSP-specific monitoring networks, the NCGSA is working in coordination with other local, state, and federal agencies collecting data to integrate data for the sustainable management of groundwater and interconnected surface water. Efforts to refine or upgrade the monitoring networks and address data gaps are ongoing.

3 <https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118>

Table 1. Monitoring Networks and Measurement Types in Napa County and the Napa Valley Subbasin

Monitoring Network	Measurement Type	Total		GSP-Specific		
		County	Napa Valley Subbasin	RMS	Supplemental	Planned
 Groundwater Level	Groundwater Level	116	81	32	40	2
 Groundwater Storage	Groundwater Levels	--	27	--	27	--
	NVIHM Model Results	--	1	1	--	--

Monitoring Network	Measurement Type	Total		GSP-Specific		
		County	Napa Valley Subbasin	RMS	Supplemental	Planned
 Land Subsidence	Groundwater Levels	--	15	15	--	--
	Benchmark Monitoring	--	8	5	3	0
	InSAR	--	1	--	--	--
 Stream Stage and Stream Discharge	Stream Stage and Stream Discharge	--	5	--	5	13
	Stream Watch	39	32	--	--	Yes
	Flood Control	28	16	--	16	--
 Interconnected Surface Water/ Groundwater	Groundwater Level	--	32	8	24	--
	NVIHM Model Results	--	2	2	--	--
 GDE Monitoring	Groundwater Level	--	33	--	33	--
	Stream Habitat	--	1	--	6	--
	Remote Sensing	--	10	--	10	--
 Groundwater Quality	Groundwater Quality	1,532 ¹	37	21	16	--
 Seawater Intrusion	Chloride testing	--	18	11	7	--
 Surface Water Quality	Surface Water Quality	--	6	0	6	--

¹ Value is from GAMA database accessed through SWRCB's server: <https://gispublic.waterboards.ca.gov/portals/server/services>

GDE = groundwater dependent ecosystem; InSAR = Interferometric Synthetic Aperture Radar; NVIHM = Napa Valley Integrated Hydrologic Model

This Report reflects an ongoing commitment by the County and NCGSA to sustainably manage groundwater and interconnected surface water resources by implementing an adaptive management approach supported by best available information. To better manage and respond to changing conditions, the NCGSA formed a Technical Advisory Group (TAG) to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin GSP. The five-member committee was first convened on August 11, 2022.

The Report includes data and information for water year (WY) 2024. Pursuant to GSP Regulations, the WY 2024 Annual Report includes the following and other information on groundwater conditions and GSP implementation:

1. Groundwater Elevation Data
2. Water Supply and Use Data
3. Groundwater Storage Data
4. Sustainable Management Criteria
5. GSP Implementation Progress

Groundwater Elevations

Groundwater elevation data in the Subbasin were analyzed for WY 2024. Groundwater elevation contour maps for seasonal low- and seasonal high-water levels have been prepared for WY 2024. Groundwater level data used to develop groundwater contours and hydrographs at representative and other monitoring sites are collected by various entities and maintained by the NCGSA's consultant, Luhdorff and Scalmanini Consulting Engineers (LSCE). Depths to groundwater in Spring 2024 ranged from one to 21 feet below ground surface as compared to four to 20 feet below ground surface in Spring 2023. Fall depths to groundwater in the alluvial aquifer ranged from nine to 58-feet below ground surface in Fall 2024 as compared to nine to 43 feet below ground surface in Fall 2023.

Following the normal (below average) WY 2024, a total of two representative monitoring sites (RMS) exceeded the groundwater level minimum threshold (MT) in Fall WY 2024. Both wells were located in the Northeast Napa Management Area.

Water Supply and Use

Table 2 presents recent groundwater use data by sector from WYs 2018 to 2024. The water use sectors and methods for determining water use presented in the WY 2024 Annual Report are consistent with the sectors and methods presented in the Napa Valley Subbasin GSP (LSCE, 2022). Groundwater uses and users in the Subbasin that rely on groundwater extracted by wells include agriculture, public water systems which include municipalities and small public water systems (including small community supply wells and wineries), and self-supplied domestic users. Other groundwater users in the Subbasin include native vegetation, groundwater dependent ecosystems (GDEs), and managed wetlands. These latter groundwater users depend on groundwater that occurs near the land surface. Groundwater users in the Subbasin also include disadvantaged communities (LSCE, 2022). Groundwater use by disadvantaged communities is included in data for the public water systems and self-supplied user sectors. As noted in **Table 2**, groundwater use is quantified through a combination of direct measurements reported by groundwater users, estimates based on population, and estimates based on irrigation demands calculated with the Napa Valley Integrated Hydrologic Model (NVIHM).

Surface water use by sector for WYs 2018 through 2024 are presented in **Table 3**, representing both imported supplies and local surface water supplies. Agricultural surface water use was compiled from surface water deliveries reported to the State Water Resources Control Board (SWRCB) Electronic Water Rights Information Management System (eWRIMS) and from reported surface water deliveries from municipalities. The Cities of Napa, Calistoga, St. Helena, and the Town of Yountville report surface water supply water for municipal users. Surface water use from small public water system is self-reported to the SWRCB Electronic Annual Reporting System (EARS).



Table 2. Recent Groundwater Use by Water Use Sector

Water Use Sector	Acre-feet per Water Year						
	2018	2019	2020	2021	2022	2023	2024
 Agriculture ¹	13,570	10,590	14,620	17,340	14,200	11,170	11,790
 Municipal Public Water Systems ²	270	250	420	540	450	330	480
 Small Public Water Systems ³	1,020	890	970	1,030	1,070	1,070	1,070
 Self-Supplied Users ⁴	3,090	2,610	3,560	4,070	3,400	2,730	2,870
 Native Vegetation (including GDEs and Managed Wetlands) ⁵	8,080	9,800	6,770	4,820	5,910	7,830	8,930
TOTAL	26,030	24,140	26,340	27,800	25,030	23,130	25,140

1. Estimated based on irrigation demand calculated by the NVIHM (Estimated, Accuracy: Medium)

2. Metered use reported by municipalities (Direct, Accuracy: High)

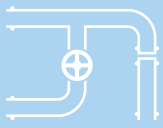
3. Metered use reported by small public water systems to the SWRCB Electronic Annual Reporting System (Direct, Accuracy: High)

4. Indoor domestic use is estimated based on self-supplied population and per capita demand. Outdoor uses for landscaping estimated based on irrigation demand calculated by the NVIHM (Estimated, Accuracy: Medium)

5. Estimated based on direct groundwater uptake calculated by the NVIHM (Estimated, Accuracy: Medium)

Note: Due to the limited availability of some hydrologic model inputs obtained from other agencies, WY 2024 groundwater extraction estimates developed using the NVIHM for the WY 2024 Annual Report are considered preliminary and subject to revision in subsequent annual reports and GSP updates.

Table 3. Recent Surface Water Use by Water Use Sector (2018-2024)

Water Use Sector	Acre-feet per Water Year						
	2018	2019	2020	2021	2022	2023	2024
 Agriculture ¹	1,170	750	800	790	410	990	720
 Municipal Public Water Systems ²	13,490	13,500	14,650	13,490	13,140	13,280	13,860
 Small Public Water Systems ³	790	660	610	290	250	260	260
TOTAL	15,450	14,910	16,060	14,570	13,800	14,530	14,840

1. Metered use reported to the SWRCB eWRIMS (Direct, Accuracy: High)

2. Metered use reported to the NCGSA (Direct, Accuracy: High)

3. Metered use reported to the SWRCB EARs (Direct, Accuracy: High)

Note: Due to the limited availability of some data obtained from other agencies, surface water use data for WY 2023 is considered preliminary and subject to revision in subsequent annual reports and GSP updates.

Subbasin Groundwater Storage

Changes in groundwater storage in the Napa Valley Subbasin are calculated with two different methodologies (**Figure 2**). The first method is through analyzing seasonal high groundwater levels at wells throughout the Subbasin in spring, the year-to-year (spring-to-spring) change is used to calculate the change in groundwater storage as required by Sustainable Groundwater Management Act (SGMA) regulations §356.2(b)(5). The second method is conducted by utilizing the NVIHM, where storage is calculated for the October 1, 2023, to September 30, 2024, period. **Table 4** presents the annual storage change in the Subbasin from WY 2019 to WY 2024 and the cumulative change of groundwater in storage from WY 1988 to WY 2024 for both methodologies. The results show that groundwater storage in the Subbasin decreased from spring-to-spring and increased from fall-to-fall in WY 2023 and WY 2024, wet and normal (below average) years, respectively. Groundwater storage declined in WYs 2020 and 2021, both of which were very dry years. The cumulative change in groundwater storage is positive under both methodologies, i.e., there is a slight surplus in groundwater storage in the Subbasin.

Figure 2. Change in Groundwater Storage Calculation Methods

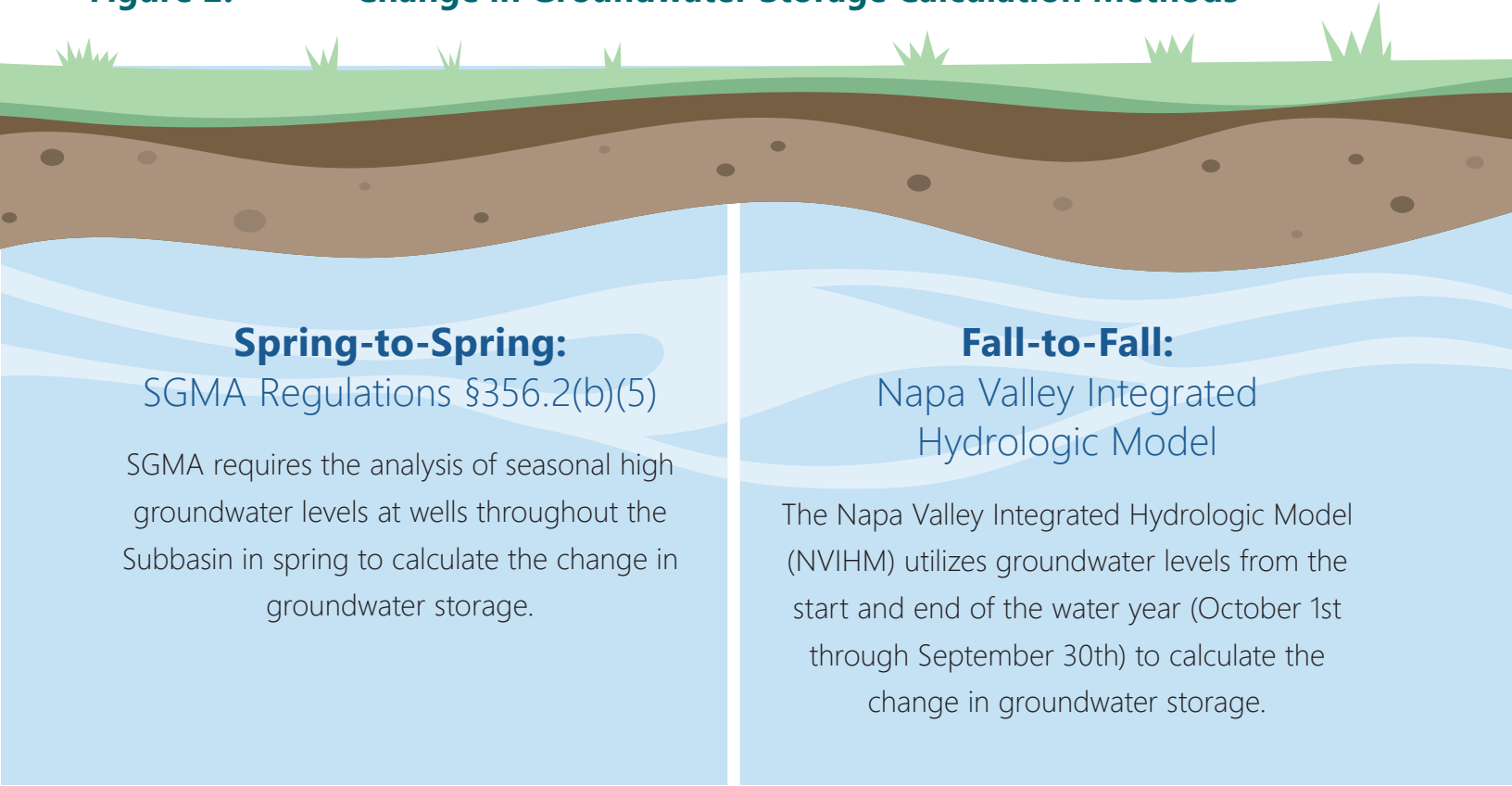


Table 4. Calculated Changes in Groundwater Storage

Storage Change Method	Water Year						1988-2024 Cumulative*
	2019	2020	2021	2022	2023	2024	
Seasonal (Spring-to-Spring) Groundwater Storage Change (AF)	11,370	-24,710	-11,930	6,510	19,640	-640	4,630
NVIHM (Fall to Fall) Groundwater Storage Change (AF)	9,310	-19,460	-16,510	9,410	20,440	2,390	6,320

* The cumulative change in groundwater storage is positive under both methodologies, i.e., there is a slight surplus in groundwater storage in the Subbasin. However, the Napa Valley Subbasin is highly responsive to drought year conditions. Therefore, recent water year types and precipitation patterns provide important context to the potential effect of future dry-year conditions on groundwater storage.

AF = acre-feet

The MT for the reduction of groundwater storage sustainability indicator is defined as the net groundwater extraction by pumping that exceeds the sustainable yield for the Subbasin, where net groundwater extraction is the volume extracted less any volume of augmented recharge achieved by projects implemented in the Subbasin. An undesirable result due to reduced groundwater storage is defined as occurring when the 7-year average annual net groundwater extraction from pumping in the Subbasin exceeds the sustainable yield. The sustainable yield of the Subbasin is estimated to be 15,000 acre-feet per year (LSCE 2022). **Table 5** summarizes the last seven years (2018-2024) of annual groundwater extraction from pumping and the 7-year average groundwater extraction from pumping with respect to the Subbasin sustainable yield. Groundwater pumping was a total of about 16,200 acre-feet (AF) in WY 2024.

Additionally, groundwater pumping in WY 2024 results in 17,920 AF as the seven-year groundwater pumping average.

The seven-year groundwater pumping average in WY 2024 qualifies as an undesirable result in the Subbasin. Even though the fall-to-fall WY 2024 resulted in a positive change in groundwater storage, the reduction in groundwater storage sustainability indicator represents a longer-term average of conditions in the Subbasin. The undesirable result does not represent a concern, but it does indicate the importance of groundwater management approaches to increase Subbasin resiliency to dry-year conditions.

... the importance of groundwater management approaches to increase Subbasin resiliency to dry-year conditions.

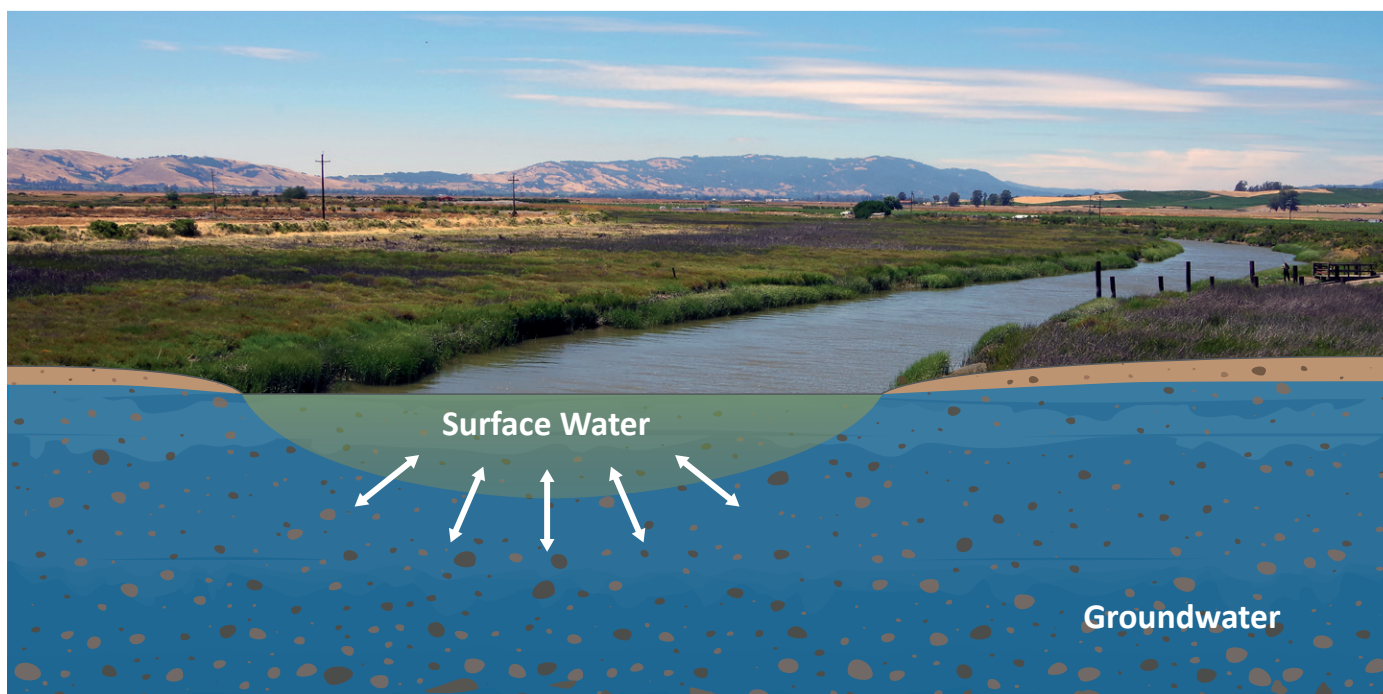
Table 5. Recent Subbasin Groundwater Extraction with Respect to the Seven-Year Average Net Groundwater Extraction and Sustainable Yield

Water Year	Water Year Type	Extraction/Pumping		Annual Minimum Threshold Exceedance*
		Total	7-Year Average	
2018	Dry	17,950	17,030	Yes
2019	Wet	14,340	16,850	Yes
2020	Very Dry	19,570	17,380	Yes
2021	Very Dry	22,980	18,070	Yes
2022	Normal (below average)	19,120	18,080	Yes
2023	Wet	15,300	17,700	Yes
2024	Normal (below average)	16,210	17,920	Yes

* An annual minimum threshold exceedance occurs when the annual pumping total exceeds the Napa Valley Subbasin sustainable yield of 15,000 acre-feet.

Interconnected Surface Water

Undesirable results for interconnected surface water occur when groundwater levels at 20 percent of the representative groundwater level monitoring network are below the MT in the fall for three consecutive years of fall measurements. In WY 2024, no groundwater levels exceeded the MT. The GSP defined the interim undesirable result specific to computed streamflow depletion as when the MT for the volume of streamflow depletion during the June to October period is exceeded for three consecutive years. While the Napa River at Oak Knoll and Napa River at Pope Street gages exceeded the interim MT for seasonal streamflow depletion volume in WY 2024, the conditions do not fit the interim criteria for defining an undesirable result for streamflow depletion in the Subbasin, which are based on three consecutive MT exceedances.



A shallow groundwater table in the Napa Valley Subbasin leads to highly interconnected surface water and groundwater throughout much of the Subbasin.

Land Subsidence

The monitoring network for land subsidence is composed of National Geodetic Survey (NGS) land surface elevation benchmarks, groundwater well sites, and remotely sensed land surface vertical displacement. The NCGSA implemented the first annual monitoring of the NGS stations in September

2022 with subsequent monitoring in August 2023. During WY 2024 monitoring of the NGS stations was discontinued in favor of remotely sensed vertical displacement. The highest rate of subsidence measured within the Subbasin occurred northwest of Yountville at the rate of -0.72 inches per year, or -0.06 feet per year, remaining below the -0.2 feet per year MT for land subsidence. Two of the eleven wells exceeded the MT water levels for land subsidence. This is not considered an undesirable result based on it being less than 20 percent of the land subsidence wells.

Degraded Water Quality and Seawater Intrusion

The Napa Valley Subbasin GSP identifies three main groundwater quality constituents of concern within the Subbasin: arsenic (As), nitrate (as nitrogen) (NO₃-N), and total dissolved solids (TDS). The groundwater quality monitoring network includes 39 well sites that include domestic supply, irrigation, and public supply wells that are currently monitored by Napa County, DWR, US Geological Survey, and the SWRCB's Division of Drinking Water (DDW). Following the NCGSA's approval of the Napa Valley Subbasin GSP on January 11, 2022, the NCGSA has implemented annual monitoring for the established GSP monitoring network. Water quality sampling was initiated in WY 2023 and continued in WY 2024. In WY 2024, two RMS wells exceeded the As MT, no RMS wells exceeded the NO₃-N MT, and no RMS wells exceeded the TDS MT. The MT exceedance for As is within the historical range of the wells and is not attributable to groundwater conditions. The MT exceedance is not considered an undesirable result.



Sustainable Management Criteria

Table 6 summarizes the status of groundwater conditions in WY 2024 relative to the GSA adopted sustainable management criteria (SMC) for the Napa Valley Subbasin.

Sustainable management criteria, specifically minimum thresholds, were exceeded for sustainability indicators addressing groundwater levels, reduction in groundwater storage, and depletion of interconnected surface water. An undesirable result occurred for the sustainability indicator for the reduction in groundwater storage. While not unforeseen given the preceding historical drought conditions, management criteria exceedances emphasize the importance of GSP implementation

activities. Historical data for the degraded water quality and seawater intrusion indicators indicate that undesirable results have not occurred for those indicators. The NCGSA is continuing to expand the monitoring effort related to those indicators, as described in the GSP.

The recent very dry water years' conditions (WY 2020 through 2022) emphasize the susceptibility of the Subbasin to substantially reduced recharge and the propensity for increased groundwater pumping to meet water demands. Together, these water budget components resulted in significantly reduced groundwater storage during those very dry water years. The GSP sets forth adaptive management criteria, which are also summarized in this Report. One of the adaptive management "response actions" includes review of subsequent mid-winter hydrologic conditions and consideration of projects and/or management actions to address concerning current and future conditions. WY 2022 was classified as a normal (below average) water year and while groundwater storage and water levels increased, in general, MT thresholds were still exceeded. Most of the precipitation in WY 2022 occurred in Fall 2022, while January through May 2022 was atypically dry with very little precipitation. The precipitation in WY 2023 registered 128 percent of average and led to significant groundwater level recovery.

This Report describes GSP implementation activities that will inform management actions that help mitigate dry-year hydrologic effects. These include (but are not limited to) the Groundwater Pumping Reduction Workplan: Napa Valley Subbasin, the Napa County Water Conservation Workplan – A Guide for Vineyards, Wineries and Other Water Users, and the Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan: Napa Valley Subbasin. These Workplans, which began in 2022 were recommended by the TAG on March 14, 2024 to be submitted to the NCGSA for approval. The NCGSA approved these Workplans on March 26, 2024. The TAG actively reviews information and makes recommendations to the NCGSA, including addressing the unprecedented drought conditions in WYs 2021 through 2022.



Workplans can be found on the Napa County website at: <https://www.countyofnapa.org/3219/County-of-Napa-Plans-Reports-Documents>

Table 6. Summary of Sustainable Management Criteria Status and Responses

Sustainability Indicator	Minimum Threshold Exceedances	Trigger Occurrence	Undesirable Result Occurrence	Response Summary
 Chronic Groundwater Level Decline	Yes 2 of 26 representative wells	No Trigger occurs if 20% of designated RMS well levels fall below the MT in fall during a single year.	No	Management actions underway include (but are not limited to) implementing the Groundwater Pumping Reduction Workplan and the Napa County Water Conservation Workplan. These Workplans, which were approved by the NCGSA on March 26, 2024, will help to curtail groundwater pumping and overall water use to enable the Subbasin to achieve the sustainability goal. Efforts to expand existing monitoring networks continue to address data gaps identified in the GSP.
 Reduction in Groundwater Storage	Yes Five consecutive water years, 2020 through 2024	Yes Trigger occurs if net groundwater extraction in three consecutive non-drought years, or four consecutive years including drought years, exceeds the sustainable yield.	Yes The seven-year average annual net groundwater extraction has exceeded the sustainable yield of 15,000 acre-feet/year*	
 Depletions of Interconnected Surface Water	Yes The interim MT for streamflow depletion volume (over the June through October period) was exceeded at the Napa River at Oak Knoll and Pope Street gages. (Groundwater elevations remained above MT.)	Yes Trigger occurs if any groundwater level or surface water depletion volume MT is exceeded.	No Based on the interim MT for streamflow depletion not being exceeded for three consecutive years	
 Land Subsidence	No All but two wells remain above MT and land surface displacement (InSAR) data indicate no MT exceedance.	No Trigger occurs if either groundwater levels at 20% of the RMS wells exceed the MT, or land surface elevation at the RMS location exceeds 0.2 feet/year.	No	
 Degraded Water Quality	Yes In WY 2024, two RMS wells exceeded the arsenic MT.	Concentrations exceeding 75% of the primary MCL (or exceed 25% more than the baseline concentration) = Trigger; statistically significant increases in concentration at any RMS indicating nearing exceedance of criteria for Trigger may also be considered a Trigger.	No	The MT exceedance was within the historical range of the RMS well and not attributable to groundwater conditions.
 Seawater Intrusion	No Continued data collection planned to occur in 2025 to evaluate baseline conditions for newly constructed monitoring wells.	No Concentrations exceeding 75% of 250 mg/L, which is the secondary MCL (or exceed 25% more than the baseline concentration) = Trigger; Statistically significant increases in concentration at an RMS indicating nearing exceedance of criteria for Trigger may also be considered a Trigger.	No	Historical data for the sustainability indicator for seawater intrusion indicators indicate that undesirable results have not occurred.

* The seven-year average annual net groundwater extraction has exceeded the sustainable yield of 15,000 acre-feet/year from 2017 to 2024.

MT = minimum threshold; RMS = representative monitoring site; MCL = maximum contaminant level; WY = water year; mg/L= milligrams per liter; InSAR = Interferometric Synthetic Aperture Radar

GSP Implementation Progress

This Report summarizes the NCGSA's progress towards implementing the GSP elements intended to avoid undesirable results and achieve the Subbasin sustainability goal by 2042, as required by SGMA. The GSP adopted in January 2022 describes Projects and Management Actions (PMAs) along with supplemental actions developed to support sustainable groundwater management, several of which entail preparatory steps and workplans.

GSP implementation activities completed during WY 2024 through Spring 2025 include efforts related to the following GSP PMAs:

GSP Project #1 (P1)	Managed Aquifer Recharge ● Development and completion of the Stormwater Resource Plan (LWA, 2023). ● Evaluating recharge scenarios and stakeholder discussion (ongoing).
GSP Project #2 (P2)	Expansion of Recycled Water Use (ongoing)
GSP Management Action #1 (MA1)	Water Conservation (Vineyards, Wineries and Other Water Users) ● Finalized and approved by the NCGSA, the Napa County Water Conservation Workplan – A Guide for Vineyards, Wineries, and Other Water Users (March 2024). ● Implementation of Workplan ongoing.
GSP Management Action #2 (MA2)	Groundwater Pumping Reductions ● Finalized and approved by the NCGSA, the Groundwater Pumping Reduction Workplan: Napa Valley Subbasin (March 2024) ● Implementation of Workplan ongoing.

GSP Management Action #3 (MA3)	Updates to the Napa County Groundwater Ordinance and updated Water Availability Analysis (in progress). ● Adoption of well metering and reporting standards (in progress). ● A countywide well inventory was conducted in 2023 and is being continually updated (ongoing).
GSP Section 6 to address data gaps	Finalized and approved by the NCGSA the Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan: Napa Valley Subbasin (March 2024). ● Implementation of the Workplan has included intensive monitoring of physical and biological characteristics. <i>Results are presented in Appendix K of the WY 2024 Annual Report.</i>

Near-term implementation activities are summarized below and described further in Section 7 of the WY 2024 Annual Report.

1. Continue implementation of above Workplans.
2. Near-term installation of surface water monitoring facilities at five sites under the California Streamgage Improvement Program (CalSIP) Grant.
3. Ongoing groundwater monitoring and initial steps to expand monitoring as described in GSP Sections 5, 9, and 12
4. Public outreach and community engagement

The Workplans include implementing advanced technologies for water conservation, groundwater pumping reduction, stormwater management and potential utilization of surplus stormwater for managed aquifer recharge, measures for tracking and reporting groundwater use, and assessments of GDEs within the Subbasin. The Workplans were developed with input from stakeholders, including the Napa County Resource Conservation District (RCD), Napa County Farm Bureau, Napa Valley Grapegrowers, Winegrowers of Napa County, California Department of Fish and Wildlife, National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service, Napa County Flood Control District, Napa Green, Napa Valley Vintners Association, California Sustainable Winegrowing Alliance, Save Napa Valley Foundation, University of California Davis Center for Watershed Sciences, and Fish Friendly Farming. Input from the public was also requested during monthly TAG meetings and through other NCGSA announcements and communications. Table 7 provides a summary list of PMAs and their status.

Table 7. Current Status of Projects and Management Actions

Action	Summary Description	Status	Implementation Notes
GSP Implementation: General and Supporting Activities			
Technical Advisory Group	Activities and meetings of the Technical Advisory Group	Ongoing	Public monthly meetings
Stakeholder engagement and outreach	Updated the Communication and Engagement Plan (February 2024). Outreach efforts include public meetings, social media announcements, and electronic communications through NCGSA-interested parties email list.	Ongoing	GSP implementation includes ongoing stakeholder engagement and outreach
GSP webmap and data visualization	Interactive webmap application presents information to the public and stakeholders on the GSP monitoring network and other key sites monitored for the GSP and available data on conditions at each site.	Ongoing	GSP implementation includes ongoing open data sharing via a public-friendly web-based application
Projects and Management Actions			
Project 1 (P1): Managed Aquifer Recharge	Completed Stormwater Resource Plan (2023). Conduct feasibility analysis and monitoring plan development, could include coordination with habitat restoration planning efforts.	 Completed Workplan (March 2024) In Progress	Public outreach and model scenarios are informing planning efforts
Project 2 (P2): Expansion of Recycled Water Use	Recycled water is produced by the Napa Sanitation District, City of Calistoga and Town of Yountville; exploring recycled water use strategies with the City of St. Helena	Ongoing expansion of recycled water use	Public outreach and model scenarios are informing planning efforts
Management Action 1 (MA1): Water Conservation (Vineyards, Wineries and Other Water Users)	Completed Napa County Conservation Workplan: A Guide for Vineyards, Wineries, and Other Water Users; description of the significant conservation measures that have been and can be implemented throughout Napa County for all water users.	 Completed Workplan (March 2024) Now implementing Workplan	Stakeholder engagement and public outreach are part of Workplan implementation <i>More information is available in Appendix K and Section 7 of the WY 2024 Annual Report</i>
Management Action 2 (MA2): Groundwater Pumping Reductions	Completed Groundwater Pumping Reduction Workplan: Napa Valley Subbasin; a roadmap for implementing measures to reduce groundwater pumping in the Napa Valley Subbasin.	 Completed Workplan (March 2024) Now implementing Workplan	Stakeholder engagement and public outreach are part of Workplan implementation <i>More information is available in Appendix I and K, and Section 7 of the WY 2024 Annual Report</i>

Action	Summary Description	Status	Implementation Notes
MA1 and MA2 Supplemental Action: Water Conservation Certification Partnership	Water Certification Partnership Technical Memorandum to encourage the expansion of water conservation approaches and technologies; concepts include leveraging existing certification programs	In Progress	Refined draft program concept and input from stakeholders presented to the TAG March 13, 2025; presentation to TAG planned in April 2025
MA1 and MA2 Supplemental Action: Vineyard Replanting Strategy	Technical Memorandum developed to consider incentives for and the feasibility of delaying vineyard replanting; such approaches would be considered where vineyard managers can readily incorporate the concept into ongoing operations	In Progress	
Management Action 3 (MA3): Napa County Groundwater Ordinance, new well permit conditions, and update Water Availability Analysis	Adopt well setback and/or well construction standards to limit direct influence of groundwater pumping on interconnected surface waters and Subbasin groundwater conditions. Includes measures to reflect updated consideration of public trust resources consistent with GSP water budget and sustainable yield analyses and sustainable management criteria.	In Progress	Napa County Board of Supervisors approved action to update Groundwater Ordinance in February 2022; stakeholder engagement and public outreach are included as part of MA3
MA3 Supplemental Action: Adopt well metering and reporting standards	Develop and adopt regulations specifying acceptable equipment, installation procedures, reporting procedures, and related aspects necessary to implement groundwater use reporting management actions.	In Progress	
MA3 Supplemental Action: Countywide well inventory	In 2023, Napa County developed a refined countywide well inventory based on review of DWR well construction reports along with County well permitting information and aerial photos to improve well location information. The inventory continues to be refined and updated with new information.	Ongoing	The countywide well inventory is being continually updated with information available through the County’s permitting process and DWR
MA3 Supplemental Action: Refinement of countywide significant streams map	Napa County is completing an updated countywide map of significant streams. Multiple data sources were used to verify and create more accurate stream data and stream flowlines. RCD information was also used to inform fish habitat, including fish presence and determination of significant streams.	✓	The comprehensive update to the countywide streams map has been completed; ongoing updates are anticipated when new data become available (including data generated through the implementation of the ISW and GDEs Workplan implementation
Ongoing and Expanded Monitoring			
Interconnected Surface Water and Groundwater Dependent Ecosystems Workplan: Napa Valley Subbasin	Workplan to guide the continued evaluation of data gaps related to interconnected surface waters and GDEs; Workplan also includes implementation of the California Environmental Flows Framework (CEFF) and defining ecological management goals	✓ Completed Workplan (March 2024) Substantial additional aquatic and terrestrial monitoring efforts are underway	
Install seawater intrusion monitoring wells at two sites	Installed 2 monitoring wells, as additions to the seawater intrusion monitoring network. (This is one of the 8 sites mentioned below.)	✓	Collection of baseline data ongoing

Action	Summary Description	Status	Implementation Notes
Install 16 new interconnected surface water monitoring wells at eight sites	Installed 16 new monitoring wells (8 sites), as additions to the interconnected surface water monitoring network.	✓	Final report submitted to DWR in Spring 2024
Install eight new surface water stage and quality meters	Install eight new surface water stage and quality meters as part of the surface water quality network, includes water quality (Temperature, Total Dissolved Solids, Salinity, Electrical Conductivity) monitoring at stream sites.	In Progress	Locations correspond to new interconnected surface water monitoring well sites.
Install or upgrade ten stream gages; expand Stream Watch network	In coordination with the Napa County RCD and Napa County Flood Control and Water Conservation District, expanded or upgraded stream stage and discharge monitoring network.	In Progress	Ongoing coordination with RCD and Napa County Flood Control and Water Conservation District
Model and Water Budget Refinement			
Expand collection of groundwater extraction and consumptive use data	Adopt well metering and reporting standards. Implement Water Conservation Workplan. Expand data management system to include additional extraction and consumptive use data made available through PMAs and other sources.	In Progress	Data collection through Workplan implementation
Streamflow monitoring network enhancement	Enhanced and expanded the streamflow monitoring network to improve model-derived representations of stream-aquifer interactions and estimates of stream depletion. Incorporated stream channel morphology data. Additional enhancement of streamflow monitoring network underway through DWR’s California Stream Gage Improvement Program (CalSIP) (2025-2026)	In Progress	Expected completion of CalSIP gages by WY 2025 Annual Report
Collect or acquire soil moisture data	Expand collection of local soil moisture and irrigation scheduling data, utilizing publicly available datasets. Implement Napa County Water Conservation Workplan. Coordinating with USGS on the development of a soil moisture module for the MF-OWHM platform (i.e., will refine the handling of soil moisture utilization in the NVIHM)	In Progress	Data collection through Workplan implementation; USGS soil moisture module anticipated to be completed in Spring 2025
Evaluate and incorporate updated climate change projections	Evaluate and incorporate updated climate change projection datasets, as available from DWR or similar source, to continue to apply best-available data to the ongoing evaluation of potential future Subbasin conditions.	Planning	Expected implementation of new climate change scenarios during the GSP 5-year periodic evaluation
State Water Resources Control Board Supply and Demand Assessment (SDA) Unit Coordination	State Board is developing a watershed model to simulate the complicated hydrology of the Napa River Watershed including flows, surface water and groundwater interaction, and water demands and has indicated interest in coordinating with the NCGSA on use of the Napa Valley Integrated Hydrologic Model (NVIHM); a Memorandum of Understanding has been developed to recognize Napa County’s, the NCGSA’s, and the State Board’s interest in cooperative data sharing and information, including outreach, engagement and education efforts to accomplish increased water conservation throughout Napa County for the benefit of present and future generations and in consideration of public trust principles.	In Progress	State Board Workplan Addendum anticipated to be completed in April 2025; the State Board anticipates completion of the Napa pilot project in 2026

DWR = California Department of Water Resources; GDE = groundwater dependent ecosystem; NVIHM = Napa Valley Integrated Hydrologic Model; MF-OWHM = ModFlow; USGS = US Geological Survey

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